

LEFROY EXPLORATION LTD

LEX:AU, \$0.89. Market cap A\$106m

Third drillhole into Burns high grade gold/copper suggests good continuity at depth

- LEX attracted a great deal of attention with the release of its first drillhole into a high grade gold/copper section at the Eastern Porphyry of the Burns project. A 38m interval in RC hole LEFR260 delivered 7.6gpt gold and 0.6% copper, a remarkable intercept, which saw an immediate rerating of LEX, peaking at a market capitalisation of around \$180m.
- LEX geologists were quick to twin the RC hole with diamond to understand what exactly they had found. This hole (LEFD004) not surprisingly drilled into the mineralised unit intersected in 260, but was extended to a TD of 371m and two further mineralised sections were obtained (10m and 50m in downhole thickness). This was very encouraging.
- We still haven't seen assays back from hole 4 due to the current delays in WA assay labs.
- LEX geologists then repositioned the rig for a step-out hole aiming to intercept the high grade zone around 50m beneath hole 260 in order to get some idea of the geometry and alteration of the mineralisation.
- Success! On 13 May, the company announced that OBURCD025 had intercepted 2 mineralised zones, one of 35m downhole width in the position expected by the geologists (always a good sign); the second demonstrating vertical continuity of one of the deeper intervals seen in hole 4.
- While only 55m down the system hole 25 is important in that it shows that the discovery hole has not just drilled down a high grade shear: there does appear to be some dimension to the zone.
- But what of the grade? Its all very well having similar rock types (and photos presented do suggest the rocks obtained in hole 25 correlate well with those in 4). Sadly we will have to wait for assays. No 'visual assaying' in this company.
- So what next? A third hole (267) has been collared to test the Eastern Porphyry some 60m beneath hole 25, attempting to establish that this discovery has more vertical extent.
- If readers are confused with all these depths and intervals, the cross section below should make it clearer.

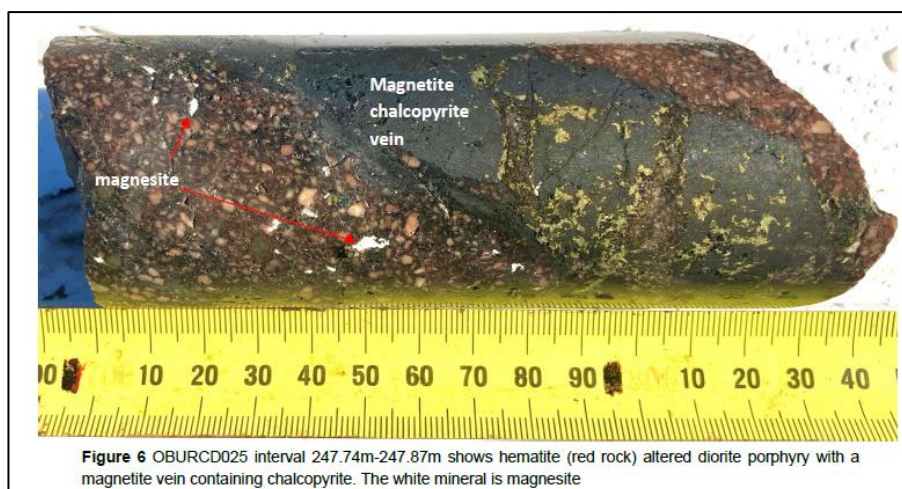
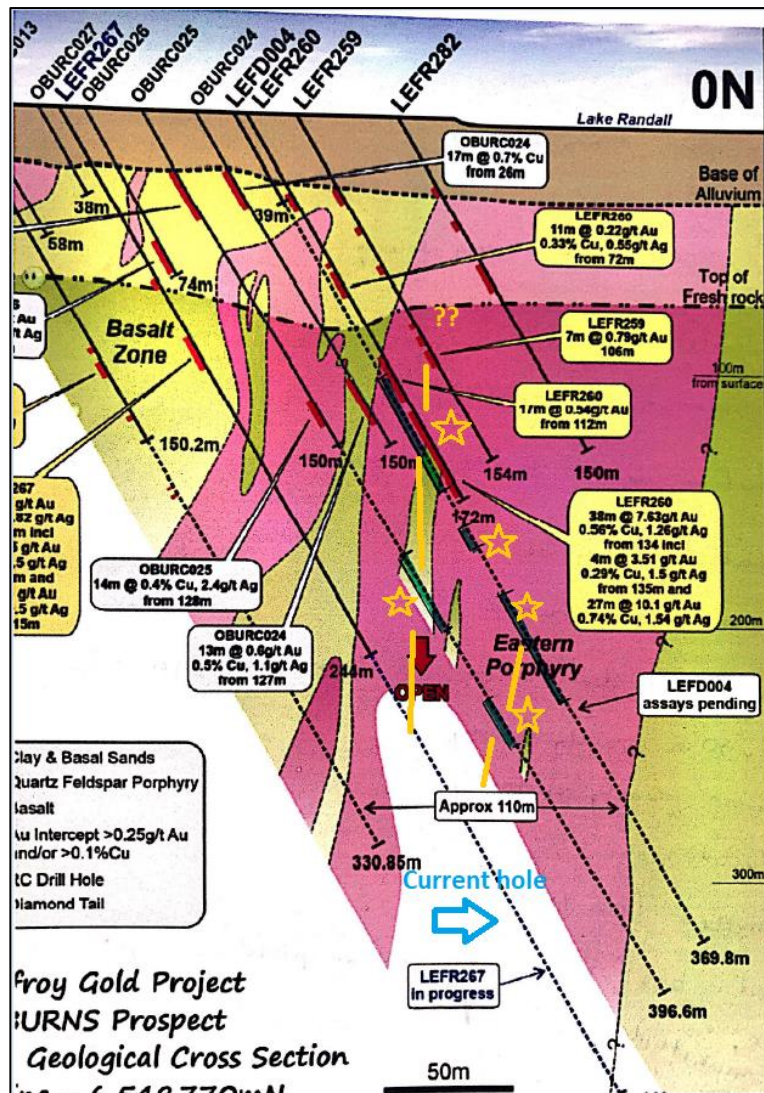


Figure 6 OBURCD025 interval 247.74m-247.87m shows hematite (red rock) altered diorite porphyry with a magnetite vein containing chalcopyrite. The white mineral is magnesite

Source: LEX release 13 May 2021



Source: modified from LEX release 13 May 2021

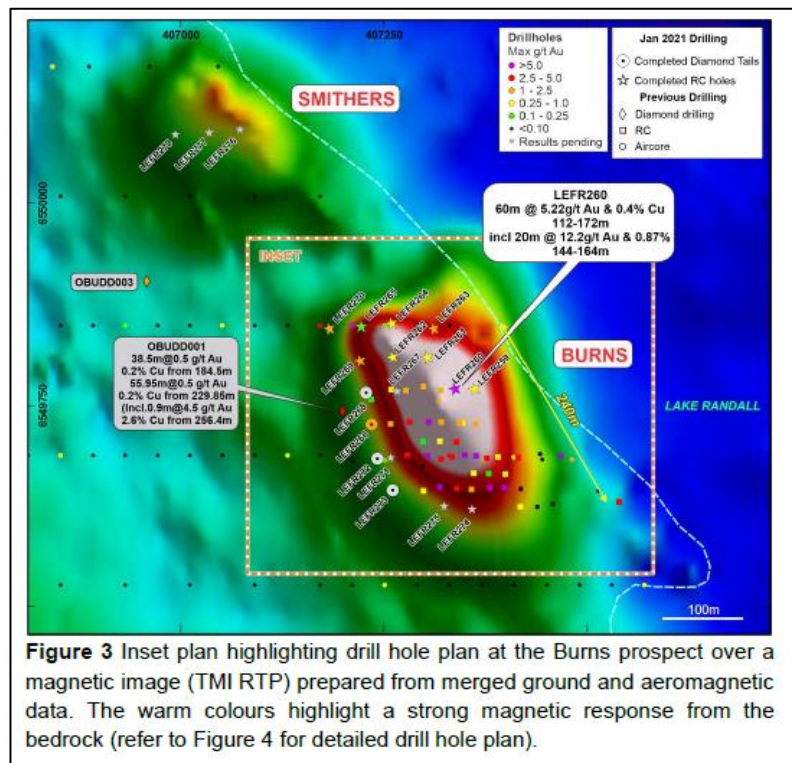
- Here we have highlighted the altered/mineralised sections (in green) with gold stars. Note that we have only seen assays from a single hole, but the rock types and mineral assemblages appear similar with “red rock” (haematite-rich alteration) and magnetite/sulphide (pyrite and chalcopyrite) overprinting diorite porphyry and basalt rock type.
- The following comment from the release is important:

Observations from hole OBURC025 support the Company’s view that the amount of magnetite-chalcopyrite veining (Figures 4 & 6) has increased with depth when compared with that observed in LEFD004. This supports the Company’s interpretation that the strength of the Burns Cu-Au mineral system may be increasing with depth.

- Improving with depth? That would be a huge positive. This is why the current hole, 267, is so important.
- Our only slight concern with this interpretation is: what happened to the mineralisation in hole 259, less that 50m above the discovery hole. Here assays are just 7m at 0.79gpt (designated ?? in the section above). But it is possible that we are near to the top of the mineralisation.

So, what could the Burns high grade zone be?

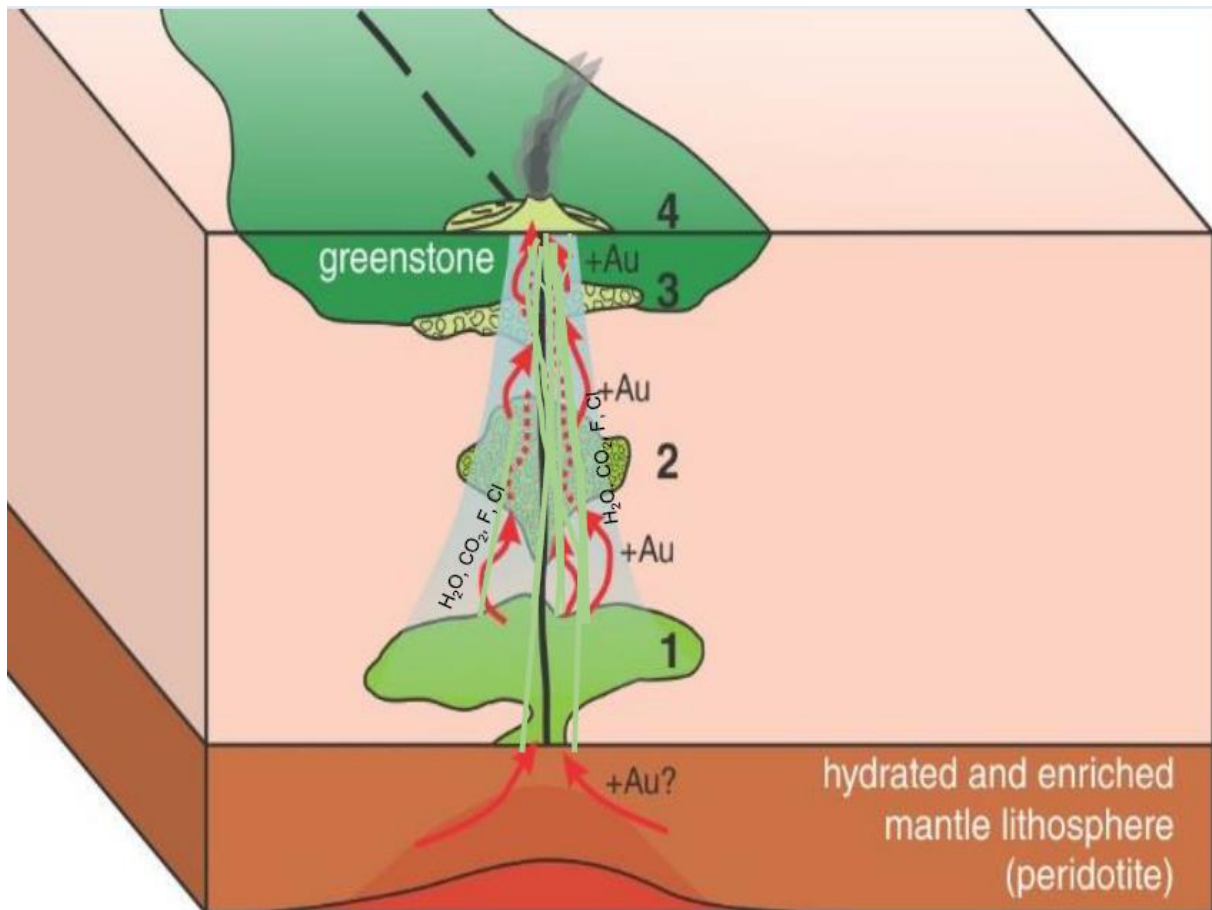
- Clearly it's still very early days, and the next few holes could be the 'make or break' for this discovery.
- We have gone back to look at what the geophysics can tell us. The rocks intercepted in all holes so far are quite rich in magnetite (see photograph of core on the previous page). So detailed magnetics should be useful.
- As shown in the following plan, the magnetic survey suggests that the Burns high grade could be more of a pipe than a vein structure. This interpretation would match the drilling so far. Hole 260 appears to have hit the magnetic unit right in its core.
- The dimension of this high mag anomaly is around 400-500m by 200-300m. Could this be mapping the magnetite-rich (and hopefully gold/copper rich) alteration?



Source: LEX release 23 February 2021

- **So what could it be?** Burns is an unusual style of mineralisation in the goldfields of WA and we have struggled to find something similar in the region. The area surrounding this discovery is peppered with drill holes from previous explorers that show plenty of decent widths of low grade copper and gold. This is plainly a very large system with plenty of contained metal. Could the Burns high grade be at the core of a pipe-like structure and which has considerable vertical extent.
- In our work in gold-copper porphyries in the much younger rocks of NSW's Lachlan Fold Belt (see our May report on Kinco, KCC:ASX), we have seen a number of deposits like this, which are referred to as finger or pencil porphyries, describing the geometry of these deposits. Examples here include the Ridgeway deposit at Cadia, the numerous copper porphyry pipes at NorthParkes and the new discovery, Boda.
- But do these types of deposits exist in the very old (Archaean/Proterozoic) rocks of WA? Work undertaken by the local Geological Survey suggest that they might. Research over the past few years has identified rocks called sanukitoids, a type of porphyry, which are chemically similar to monzodiorites, diorites and granodiorites but which contain minerals which suggest they are very

late intrusives and might be responsible for the gold mineralisation seen at Burns. They are inferred to come from very deep in the earth's crust, so could have significant depth extent. The following cartoon illustrates the theory.



Source: H Smithies, WA Geological Survey, 2019

- These sanukitoids may be plumbed by major crustal fractures, which are plentiful around the area of the Burns mineralisation.

So what is, or why is there, this clear and significant relationship between these magmas and Au mineralization

?



Simple

Lamprophyres, sanukitoids
and Au mineralization all like
to hang around big cracks!



Source: H Smithies, WA Geological Survey, 2019

- We assume that there is a major fault zone (a 'big crack') in the Burns area into which the Eastern Porphyry has been intruded.

BSCP's view

- LEX has demonstrated the age-old thesis: put good geologists into prospective geology, provide them with healthy exploration budgets, and with a bit of science and a good helping of geological luck, an orebody will be found. Wade Johnson, LEX's CEO has spent decades in the Kalgoorlie goldfields. The Burns project has been on his radar screen for many years.
- The next few months will be interesting. The next datapoint will be core from hole 267 which is likely to hit TD within days. Should this show more-Burns style mineralisation ("red rock" and magnetite with pyrite and chalcopyrite), this could add a further 60m or so to the down-plunge extent of the zone.
- Then we are likely to see further holes, perhaps deeper, perhaps along strike, to obtain an idea of how big this thing might be.
- And sometime over the next few weeks, we will see assays from holes 4 and 25, hopefully confirming that economic grades have been intersected.
- The next question for us is: could there be other porphyries along this major fault? Could Smithers, a few hundred metres to the NW, be another deeper pipe? Could Neon, 5km to the NW be something similar?
- What's it worth? The success case could see LEX at multiples of the current share price, particularly in the current exploration focussed market. Investors should recall that Chalice's Julimar discovery, still without a resource and definitive metallurgy, underpins a \$2.6 billion market cap.
- It is early days, and exploration is a risky business. However, for us Burns is one of the more interesting discoveries in the Eastern Goldfields. We find it a little odd that with such success the stock has dropped some 40% from its highs in April.
- There should definitely be room in portfolios for LEX.

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Dr Chris Baker, an authorised representative of BSCP, certifies that the advice in this report reflects his honest view of the company. He has 29 years investment experience in wholesale capital markets. He worked as a mining analyst for brokers BZW and UBS for 11 years and has a further 16 years' experience as a mining analyst and portfolio manager with Colonial First State and Caledonia Investments. He now provides independent financial advice on a part time basis. He may own securities in companies he recommends but will declare this when providing advice. He currently owns shares in LEX. He is remunerated by BSCP but is not paid a specific fee for providing this report.

BSCP acted as Joint Lead Manager of the IPO of LEX in October 2016 and received corporate finance fees for this role. BSCP acted as Joint Lead Manager of a placement of shares for LEX in July 2018 and August 2019 and received corporate finance fees for this role. BSCP, its directors and consultants may own shares and options in LEX and may, from time to time, buy and sell the securities of LEX.

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